REMARKS

The Examiner is thanked for his careful and very thorough Office Action.

Claims 1-9 are pending. Claim 9 has been allowed. Claims 1, 4, 7, and 8 have been rejected. Claims 2, 3, 5, and 6 have been objected to.

The foregoing amendments to the specification are submitted to improve clarity, and to remove various typographical and other minor informalities. These changes are respectfully asserted not to introduce new matter, and their entry is respectfully requested.

Art Rejections

The art rejections are all respectfully traversed.

Rejection Under 35 USC 102(b)

Claims 1, 4, 7, and 8 stand rejected under 35 USC Section 102(b) as being anticipated by Rasmussen (U.S. Patent No. 3,650,924).

Claim 1:

> A method for inhibiting growth of fauna on a ship hull, comprising the step of:
>
> (a.) bubbling a gas which reduces the oxidation potential of water, in proximity to the hull.

The Examiner has suggested that Rasmussen discloses a method and apparatus for inhibiting growth of fauna on a ship hull by bubbling a gas which reduces the oxidation potential of water in proximity to the hull. However, Applicant respectfully disagrees with this suggestion.

As stated in col. 1, lines 31-36 of Rasmussen:

> *It is known to use the decomposition products of sea water as antifouling substances for marine microorganisms on the underwater surface of ships, an electrode system mounted on the side of the ship being*

used for this purpose. It is also known to carry out the decomposition in a container on board the ship.

The novelty of Rasmussen is not in using the decomposition products of sea water as an antifouling substance, but rather in using compressed air around the side of a ship to form a dense blanket of air whereby the antifouling substances formed as a result of the electrolysis of sea water are retained adjacent to the side of the ship. As stated in the abstract of the disclosure of Rasmussen:

Sea water is subjected to electrolysis and the decomposition products are conveyed to and discharged along the side of the ship. Compressed air is simultaneously conducted to the side of the ship and discharged beyond the decomposition products in an amount to form a dense air blanket which holds the decomposition products adjacent the side of the ship.

As noted in Rasmussen, using an electrolysis device for electrolyzing a dilute salt solution such as sea water to generate chlorine at the anode is known for preventing adhesion of organisms to underwater structures.

By contrast, the present innovations do not use decomposed sea water and, specifically, do not use chlorine.

Claim 1 of the present application recites, "a gas which reduces the oxidation potential of water." Chlorine is not a reducing agent and, thus, does not reduce the oxidation potential of water. It is an oxidizing agent.

Chlorine exerts a potent germicidal effect against most bacteria, viruses, protozoa, and fungi through formation of undissociated hypochlorous acid (HOCl) in water at acid to neutral pH. Hypochlorous acid kills microorganisms and bacteria by attacking the lipids in the cell walls and destroying the enzymes and structures inside the cell, rendering them oxidized and harmless.

By contrast, the reducing gas disclosed by the present inventions prohibits the growth of fauna by depleting the oxygen content in the water around the ship. Thus, aquatic organisms depending on the supply of oxygen around the immediate area of the ship will die.

According to the Federal Circuit:

> For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art.

Motorola, Inc., v. Interdigital Tech. Corp., 43 USPQ 2d 1481, 1490 (Fed. Cir. 1997). Accordingly, a prima facie case of anticipation has not been established by the Examiner with regard to claim 1.

Claim 4:

> A method for inhibiting growth of fauna on a ship hull, comprising the step of:
>
> (a.) bubbling a nitrogen-rich gas into water in proximity to the hull.

Claim 4 of the present application recites, "bubbling a nitrogen-rich gas into water in proximity to the hull." As stated above, the electrolysis of sea water results in the formation of chlorine, which acts as an antifouling agent. Chlorine is not a nitrogen-rich gas. Accordingly, a prima facie case of anticipation has not been established by the Examiner with regard to claim 4.

Claim 7:

A demountable anti-fouling system, comprising:

bubbler hoses having a gas-permeable surface;

gas-supply connections which provide, to said bubbler hoses, a gas composition which is less oxidizing than atmospheric air; and

mechanical supports which hold said bubbler hoses in proximity to the outer surface of a vessel's hull.

Claim 7 of the present application recites, "a gas composition which is less oxidizing than atmospheric air." As stated above, the electrolysis of sea water results in the formation of chlorine, which acts as an antifouling agent. Chlorine is not less oxidizing than air. Accordingly, a prima facie case of anticipation has not been established by the Examiner with regard to claim 7.

Claim 8:

A hull-mounted anti-fouling system, comprising:

a vessel hull have a fluid network emplaced therein;

bubbler outlets mounted in said hull and connected to said fluid network; and

a controllable source of a non-oxidizing gas connected to said fluid network.

Claim 8 of the present application recites, "a non-oxidizing gas connected to said fluid network." As stated above, the electrolysis of sea water results in the formation of chlorine, which acts as an antifouling agent. Chlorine is not a non-oxidizing gas. As established earlier, it is, in fact, an oxidizing gas. Accordingly, a prima facie case of anticipation has not been established by the Examiner with regard to claim 8.

Thus, for the reasons discussed above, Applicant respectfully requests withdrawal of this rejection.

Conclusion

All grounds of rejection and/or objection are traversed or accommodated, and favorable reconsideration and allowance are respectfully requested. The Examiner is requested to telephone the undersigned attorney or Patrick C. R. Holmes for an interview to resolve any remaining issues.

Respectfully submitted,

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IN THE DRAWINGS

As requested by the Examiner, a new set of corrected drawings is enclosed with this amendment. This new set of drawings is consistent with the original drawings and the specification.

Attachment: Nine (9) Replacement Sheets